CLAIMS

1. An *in vitro* method for determining a risk of developing thrombosis in a subject, which method comprises identifying polymorphisms of $P2Y_{12}$ receptor at positions 139, 744, and 801 of the intron (SEQ ID No 1), and at position 52 of exon 2 (SEQ ID No 2), wherein the simultaneous presence of T at position 139 of the intron, presence of C at position 744 of the intron, insertion of A at position 801 of the intron, and presence of T at position 52 of exon 2 are designated H2 haplotype and, when present on at least one allele, are indicative of a higher risk to develop thrombosis in comparison with a control subject without any H2 allele.

2. The method according to claim 1, wherein said thrombosis is an arterial thrombosis.

3. The method of claim 2, wherein the presence of the H2 haplotype on at least one allele is further indicative of a higher risk to develop peripheral arterial disease (PAD).

4. An *in vitro* method for determining sensitivity of a subject toward a thienopyridine therapy, which method comprises identifying polymorphisms of $P2Y_{12}$ receptor at positions 139, 744, and 801 of the intron (SEQ ID No 1), and at position 52 of exon 2 (SEQ ID No 2), wherein the simultaneous presence of T at position 139 of the intron, presence of C at position 744 of the intron, insertion of A at position 801 of the intron, and presence of T at position 52 of exon 2 are designated H2 haplotype and, when present on at least one allele, are indicative of a lower sensitivity of the subject toward a thienopyridine therapy, in comparison with a control subject without any H2 allele.

5. The method of claim 4, wherein the thienopyridine therapy is a therapy using ticlopidine or clopidogrel.

6. An *in vitro* method for identifying at least one polymorphism of an haplotype of the $P2Y_{12}$ receptor associated with thrombosis in a subject or associated with lower sensitivity toward a thienopyridine therapy, which method comprises analyzing genomic DNA of a biological sample, in at least one of the regions of the $P2Y_{12}$ receptor gene, located around positions 139, 744 and 801 of the intron (SEQ ID No 1) and position 52 of exon 2 (SEQ ID No 2); wherein the simultaneous presence of T at position 139 of the intron, presence of C at position 744 of the intron, insertion of A at position 801 of the intron, and presence of T at position 52 of exon 2 are designated H2 haplotype and, when present on at least one allele, are indicative of a higher risk to develop thrombosis or of a lower sensitivity toward a thienopyridine therapy, in comparison with a control subject.

7. The method according to claim 6, wherein the analysis is undertaken on genomic DNA that is extracted from the biological sample.

8. The method according to any of claims 6 or 7, wherein the analysis comprises a step of amplification of said region(s) of the genomic DNA.

9. The method according to any of claims 6 to 8, wherein the polymorphisms of the $P2Y_{12}$ receptor are identified by sequencing.

10. An isolated nucleic acid encoding the $P2Y_{12}$ receptor, which nucleic acid comprises the $P2Y_{12}$ gene sequence with the simultaneous presence of T at position 139 of the intron, presence of C at position 744 of the intron, insertion of A at position 801 of the intron, and presence of T at position 52 of exon 2.

11. A kit suitable for the methods according to any of claims 1 to 6, which kit comprises a pair of nucleotide primers specific for amplifying all or part of the $P2Y_{12}$ gene comprising at least one of positions 139, 744 and 801 of the intron (SEQ ID No 1) and/or position 52 of exon 2 (SEQ ID No 2).